

5.7 Rivers, Streams and Riparian

Total River Miles: 58,890 (includes all rivers and streams)

Description and Overall Condition: This landscape component includes all rivers, streams, and associated riparian areas which are distributed throughout the state. River floodplains and the associated riparian habitat represent narrow corridors of unique habitat in the state. Cattle grazing in some areas has been detrimental to riparian habitat and is one factor relating to reduced water quality. Development such as increased housing along the Missouri River can be disturbing to some wildlife species. Many small low-head dams have impeded fish movement. The creation of larger dams such as Garrison Dam resulted in numerous positive benefits, but is an obstruction in the natural cycle of cottonwood regeneration.

Predominant Natural Vegetation:

Trees and Shrubs: cottonwood, American elm, green ash, box elder, bur oak, basswood, hackberry, peachleaf willow, hophornbeam, prickly ash, Missouri gooseberry, black currant, buckthorn, nannyberry

Forbs: Virginia wild rye, nodding muhly, charming sedge, Sprengel's sedge, jack-in-the-pulpit, wood leek, large bellwort, false Solomon's seal, Solomon's seal, nodding trillium, carrion flower, tall nettle, wood nettle, wild four-o'clock, baneberry, wild ginger, columbine, kidneyleaf buttercup, tall meadowrue, bloodroot, yellow wood violet, pink wood violet, white avens, sweet cicely, wild sarsaparilla, honeywort, waterleaf, yellow wood parsnip, fringed loostripe, tall coneflower

Associated Species of Conservation Priority:

Birds	Mammals	Reptiles/Amphibians
Golden Eagle Bald Eagle Red-headed Woodpecker Black-billed Cuckoo Piping Plover Least Tern	Western Small-footed Myotis Long-legged Myotis Long-eared Myotis Pygmy Shrew River Otter	False Map Turtle Smooth Softshell Common Snapping Turtle Northern Redbelly Snake
Fish	Mussels	
Chestnut Lamprey Silver Lamprey Pallid Sturgeon Paddlefish Sturgeon Chub Sicklefin Chub Silver Chub Pearl Dace Hornyhead Chub Pugnose Shiner Blacknose Shiner Rosyface Shiner Northern Redbelly Dace Finescale Dace Flathead Chub Blue Sucker Yellow Bullhead Flathead Catfish Trout-perch Logperch River Darter Central Stoneroller	Threeridge Wabash Pigtoe Mapleleaf Black Sandshell Creek Heelsplitter Pink Heelsplitter Pink Papershell	

Other Characteristic Wildlife:

Birds: wood duck, mallard, hooded merganser, common merganser, turkey vulture, osprey, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, American kestrel, ring-necked pheasant, wild turkey, American woodcock, mourning dove, yellow-billed cuckoo, great horned owl, Eastern screech owl, barred owl, long-eared owl, common nighthawk, chimney swift, ruby-throated hummingbird, yellow-bellied sapsucker, downy woodpecker, hairy woodpecker, yellow-shafted flicker, pileated woodpecker, Western wood pewee, Eastern wood-pewee, yellow-bellied flycatcher, willow flycatcher, least flycatcher, Eastern flycatcher, great crested flycatcher, purple martin, tree swallow, Northern rough-winged swallow, bank swallow, cliff swallow, blue jay, black-billed magpie, common crow, black-capped chickadee, white-breasted nuthatch, brown creeper, house wren, Eastern bluebird, veery, wood thrush, American robin, gray catbird, brown thrasher, cedar waxwing, Bell's vireo, yellow-throated vireo, warbling vireo, Philadelphia vireo, red-eyed vireo, yellow warbler, yellow-rumped warbler, American redstart, ovenbird, Northern waterthrush, common yellowthroat, migratory warblers, scarlet tanager, rose-breasted grosbeak, black-headed grosbeak, lazuli bunting, indigo bunting, spotted towhee, Eastern towhee, chipping sparrow, lark sparrow, clay-colored sparrow, song sparrow, common grackle, brown-headed cowbird, orchard oriole, Bullock's oriole, Baltimore oriole, American goldfinch

Mammals: little brown bat, silver-haired bat, big brown bat, Eastern red bat, hoary bat, Eastern cottontail, woodchuck, Eastern chipmunk, gray squirrel, fox squirrel, Northern flying squirrel, beaver, white-footed mouse, Southern red-backed vole, meadow vole, meadow jumping mouse, Western jumping mouse, porcupine, coyote, red fox, gray fox, raccoon, American marten, ermine, long-tailed weasel, least weasel, bobcat, elk, mule deer, white-tailed deer

Reptiles and Amphibians: Woodhouse's toad, Great Plains toad, gray tree frog, Northern leopard frog, tiger salamander, common mudpuppy, common garter snake, plains garter snake, painted turtle

5.7.a Focus Area: Missouri River System/Breaks

Water: 444,000 acres

Breaks: 2,248,000 acres (910,000 ha)

Description and Condition: The longest river in the United States, the Missouri River begins in the Rocky Mountains of Montana and flows southeast to its confluence with the Mississippi River in Missouri. It is the largest river system in North Dakota. Tributaries in North Dakota include the Yellowstone, Little Missouri, Knife, Heart, and Cannonball rivers, and the Little Muddy and Tobacco Garden creeks. The natural river flow was altered by damming in the 1950s. The River Breaks are rather steep, dissected topography with woody draws, riparian forest, and uplands of shortgrass prairie. Cottonwood regeneration is lacking in some areas due to loss of natural flooding events which stimulates new cottonwood growth. Human development and urban expansion is occurring in some areas, particularly around the Bismarck/Mandan area.



Missouri River/Yellowstone Confluence.

Key Species of Conservation Priority

Birds: bald eagle, piping plover, least tern, red-headed woodpecker, golden eagle

Mammals: river otter

Reptiles and Amphibians: smooth softshell, false map turtle

Fish: sturgeon chub, pearl dace, blue sucker, paddlefish, pallid sturgeon, flathead catfish, flathead chub, sicklefin chub, yellow bullhead

5.7.b Focus Area: Red River

Description and Condition: The Red River basin drains 39,300 square miles of the three-state region, including 21,000 acres of eastern North Dakota. Its largest North Dakota tributary is the Sheyenne River, but includes the Wild Rice, Maple, Rush, Elm, Goose, Turtle, Forest, Park and Pembina rivers. Many of these rivers are influenced by channelization and flood control impoundments implemented to control land drainage for agriculture. Extensive drainage ditch systems in the region also alter the natural hydrology of this basin. Agricultural run-off and wastewater inputs also impair the system.

Key Species of Conservation Priority

Birds: bald eagle, red-headed woodpecker, black-billed cuckoo

Mammals: river otter

Reptiles and Amphibians: redbelly snake

Fish: pearl dace (Tongue and Park rivers), silver chub, Northern redbelly dace (Rush River), trout-perch, chestnut lamprey, silver lamprey, central stoneroller (Forest River), hornyhead chub (Forest River), pugnose shiner (Forest River), blacknose shiner, finsecale dace (Tongue River), yellow bullhead, logperch, river darter

Mussels: threeridge, wabash pigtoe, mapleleaf, black sandshell, creek heelsplitter, pink heelsplitter, pink papershell (Bois de Sioux River)



The Red River of the North.

5.7.c Focus Area: Sheyenne River

Description and Condition: The basin of the Sheyenne River covers 360,000 ha, making it the largest contributing tributary to the Red River in area. It originates in the mixed grass region of central North Dakota and flows southeasterly to its confluence with the Red River. Agricultural and ranching practices throughout the region along with wastewater discharge affect water quality in this drainage. The construction of an outlet from Devils Lake in to the Sheyenne River also poses risks to the system.

Key Species of Conservation Priority

Birds: black-billed cuckoo, red-headed woodpecker

Mammals: river otter

Reptiles and Amphibians:

Fish: Northern redbelly dace, pugnose shiner, blacknose shiner, roseyface shiner, yellow bullhead

Mussels: threeridge, wabash pigtoe, mapleleaf, black sandshell, creek heelsplitter, pink heelsplitter



Sheyenne River riparian area.

5.7.d Focus Area: James River

Description and Condition: The James River begins in the Drift Prairie of central North Dakota



James River.

and flows south into South Dakota. Land use of this area is predominantly agricultural. One large reservoir north of the town of Jamestown is used for flood control and municipal needs. Poor land use practices and water withdrawal are identified as threats to this system. Many stretches of this river are impaired by high nutrient loads and sedimentation.

Key Species of Conservation Priority

Birds: black-billed cuckoo

5.7.e Focus Area: Souris River

Description and Condition: The Souris River begins in eastern Saskatchewan and flows south into northern North Dakota and then returns north into Canada. Water flows are controlled by two large reservoirs in Saskatchewan and a number of smaller dams in North Dakota. Land use in this drainage is prominently agricultural. A number of stretches of the river are impaired by high nutrient content, and sedimentation. Wastewater discharge also affects water quality in this region.

Key Species of Conservation Priority

Birds: black-billed cuckoo

Mammals: river otter

Fish: pearl dace, trout-perch



Souris River.

5.7.f Focus Area: Cannonball River

Description and Condition: The Cannonball River flows 135 miles, west to east across southwestern North Dakota before flowing into Lake Oahe on the Missouri River. Flow in the river can range from no flow during dry years to 95,000 cubic feet per second during wet years. The Cannonball River and tributaries are threatened in both the upper and lower portions of its drainage by high nutrient levels and high sedimentation, most likely caused by land use practices in that watershed. Pathogens have also been cited as impairments to this river system.

Key Species of Conservation Priority

Birds: golden eagle (possible)

Reptiles and Amphibians: smooth softshell (possible)

Fish: Northern redbelly dace, flathead chub,



Cannonball River.

5.7.g Focus Area: Heart River

Description and Condition: The Heart River crosses approximately 180 miles of western North Dakota. It begins in Billings County, in the Little Missouri National Grassland. It flows east through the Patterson Reservoir near Dickinson. At Gladstone, it is joined by the Green River, and flows ESE, through Lake Tschida which is formed by the Heart Butte Dam. It then turns northeast and joins the Missouri River at the town



Heart River oxbow.

of Mandan. The Heart River is threatened due to land use practices. Current problems include reduced riparian width, lack of native riparian plant diversity, stream bank erosion, channel and pool filling with sediments, and increased runoff from watershed. Degradation of the riparian zone is the result of poor grazing practices. A few stretches, particularly east of Lake Tschida, appear in satisfactory condition.

Key Species of Conservation Priority

Reptiles and Amphibians: smooth softshell (possible)

Fish: Northern redbelly dace, flathead chub, rosyface shiner

5.7.h Focus Area: Knife River

Description and Condition: The Knife River originates in the badlands area in west-central North Dakota and flows easterly 200 miles to its confluence with the Missouri River. Much of the watershed is threatened by poor land use practices. Increased erosion in the area has led to higher sediment loads. Run-off from area land into the watershed also causes impairment.

Key Species of Conservation Priority

Fish: Northern redbelly dace, flathead chub

5.7.i Focus Area: Little Missouri River

Description and Condition: The Little Missouri River originates in eastern Wyoming. The North Dakota portion of the river flows north through the badlands of western North Dakota. It eventually dumps into Lake Sakakawea at Little Missouri Bay. Areas of plains cottonwood forest along the river banks still occur, but have been reduced from historic levels. Cattle grazing and unrestricted use along the majority of the river is a possible threat in North Dakota.

Key Species of Conservation Priority

Birds: red-headed woodpecker, golden eagle

Mammals: Western small-footed myotis, long-legged myotis, long-eared myotis

Fish: sturgeon chub, Sicklefin chub, Northern redbelly dace, flathead chub, flathead catfish



The Little Missouri River meanders through the badlands of western North Dakota.

5.7.j Conservation Problems and Actions for Rivers, Streams and Riparian

RIVERS, STREAMS AND RIPARIAN				
CONSERVATION PROBLEM		CONSERVATION ACTION		POTENTIAL PARTNERS
Direct Loss of Habitat				
Draining, filling or other loss of river and stream channels.	Protect rivers, streams, and riparian areas where possible (i.e. easements and/or acquisition).	NDGFD USFWS NRCS ACOE FAA FHWA PPJV NGPJV	NDNRT DU Delta Audubon	NDWRB
	Work with partners to ensure Swampbuster provisions are maintained.			
	Continue to use the Section 404 program to ensure affected rivers and riparian areas are mitigated to replace form and function.			
	Continue to work with federal agencies in situations where wetlands are not covered by Section 404 or Swampbuster to ensure affected rivers and riparian areas are mitigated to replace form and function.			
Loss of riparian habitat due to alteration of the natural hydrology (e.g. channelization, wetland draining).	Continue to work with NDSWC to develop minimum in-stream flow recommendations.	NDGFD USFWS NRCS ACOE NDSWC NGPJV	NDNRT DU Audubon	NDWRB
	Work with partners to implement easements (i.e. EWP, WRP, and ACOE sluffing or flood control easements).			
Loss of riparian habitat due to farming activities (e.g. tillage).	Develop and promote incentive programs to restore riparian areas.	NDGFD USFWS NRCS NGPJV FSA	NDNRT	RRBRP
	Work with partners to implement easements (i.e. EWP and WRP).			
Loss of riparian habitat due to development (e.g. urban sprawl, ranchettes, marinas).	Work with partners to implement easements. (e.g. NRCS and TNC)	NDGFD USFWS NRCS NGPJV	NDNRT TNC	County Zoning Boards
	Work with county zoning and planning officials to designate areas in need of protective covenants.			
Habitat Degradation				
Degradation of riparian habitat due to grazing.	Develop and promote incentive programs to enhance or restore riparian areas.	NDGFD NRCS		
Water quality impairment (i.e. non-point source run-off, sedimentation, change in temperature regime).	Continue to work with ND 319 Task Force in prioritizing projects within impaired watersheds and implementing BMPs.	NDGFD NRCS NDDOH 319 Task Force		
Bank erosion.	Work to modify dam operation regimes.	NDGFD USFWS ACOE NRCS		RRBRP
	Develop and promote incentive programs for adjacent landowners to improve bank stability through land use changes (e.g. RRBRP).			
	Promote non-traditional bank stabilization measures (i.e. root wads, willow waddles, vegetative slope)			
Clearing and snagging.	Work with local and county water boards	NDGFD NDSWC		NDWRB

RIVERS, STREAMS AND RIPARIAN			
CONSERVATION PROBLEM	CONSERVATION ACTION	POTENTIAL PARTNERS	
	and NDSWC on the importance of leaving snags.		
Other Problems			
Fish entrainment/impingement.	Implement intake conditions or recommendations (i.e. screening and velocity requirements)	NDGFD NDDOH NDSWC USFWS ACOE	
Restriction of fish migration (i.e. low head dams).	Work with the dam owners for potential removal or modification.	NDGFD NDDOH NDSWC USFWS ACOE	Private Landowners
Invasive and Noxious Species			
Noxious weeds (i.e. purple loosestrife, salt cedar, Eurasian milfoil).	Control noxious weeds through biological and chemical methods.	NDGFD NDSL	NDWCA
Aquatic Nuisance Species.	Cooperate with Fisheries Division on state aquatic nuisance species plan.	NDGFD NDDAG NDDOH NDPRD NDSWC	Water Users Assoc.
Data Gaps			
Lack of baseline information on SoCP.	Survey areas of data gaps. Conduct research/surveys to establish baseline information on SoCP.	NDGFD	
Conservation Awareness			
Knowledge on the value of rivers, streams, and riparian areas.	Continue to work with partners in promoting and distributing educational materials related to river, stream and riparian values and good stewardship.	NDGFD NDDOH NDWSC NDFS USFWS NRCS	NDSUEXT